MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Group
100 Bureau Drive, Stop 2321
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SRM Number: 3069
MSDS Number: 3069
SRM Name: Organochlorine Pesticides-I in Acetone
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SECTION I. MATERIAL IDENTIFICATION

Material Name: Organochlorine Pesticides-I in Acetone

Description: This material is a solution of 22 organochlorine pesticides in acetone. A unit of SRM 3069 consists of five 2 mL ampoules, each containing 1.2 mL of solution.

Other Designations: Organochlorine Pesticides-I in **Acetone** (2-propanone; dimethylformaldehyde; dimethyl ketone; beta-ketopropane; methyl ketone; propanonene; pyroacetic ether)

Name	Chemical Formula	CAS Registry Number*
Acetone	CH_3COCH_3	67-64-1

DOT Classification: Acetone (Small Quantity Exemption), UN1090

Manufacturer/Supplier: Available from a number of suppliers

*For the CAS Registry Numbers of the organochlorine pesticides in this material, refer to the corresponding Certificate of Analysis.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Acetone	> 99	ACGIH TWA: 500 mg/kg
		OSHA TWA: 1000 mg/kg or 2400 mg/m^3
		Man, Oral: TD_{LO}: 2857 mg/kg
		Rat, Oral: LD_{50}: 5800 mg/kg
Organochlorine Pesticides ** Aldrin; *cis*-Chlordane; *trans*-Chlordane; 4,4'-DDE; 4,4'-DDD; 4,4,'-DDT; Dieldrin; Endosulfan I; Endosulfan II; Endrin; β-HCH; δ-HCH; ϒ-HCH; Heptaclor; Heptachlor epoxide; Hexachlorobenzene; Hexachlorocyclopentadiene; Methoxychlor; cis-Nonachlor; trans-Nonachlor; Propachlor; Trifluralin		Not applicable

**This material contains organochlorine pesticides, many of which have been reported to have toxic, mutagenic, and/or carcinogenic properties, and should be handled with care. The carcinogens in this material have a total concentration of < 0.1 % and do not require individual MSDS information under current regulations. For actual concentrations, see the corresponding Certificate of Analysis.

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Acetone	
Appearance and Odor: clear, colorless volatile liquid with a sweet, minty odor	**Vapor Pressure (@ 20 °C):** 180 mm Hg
Relative Molecular Mass: 58.08	**Evaporation Rate (ether = 1):** 6
Density (water = 1): 0.7899	**pH:** not available
Boiling Point: 56 °C	**Water Solubility:** soluble
Freezing Point: -95 °C	**Solvent Solubility:** soluble in alcohol, ether, benzene, chloroform, dimethylformamide, oils

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Acetone
Flash Point: -20 °C **Method Used:** Closed Cup **Autoignition Temperature:** 465 °C

Flammability Limits in Air (Volume %): **UPPER:** 13
LOWER: 2.5

Unusual Fire and Explosion Hazards: Acetone is a severe fire and explosion hazard when exposed to heat or flame. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Vapor and air mixtures are explosive.

The major hazards of organochlorine pesticide fires are associated with the possibility of pesticides being released into the environment, where they and their products of degeneration can pose serious long-term health risks. The potential problems are heightened by the resistance of chlorinated pesticides to biological and chemical degradation and by the possibility that they will contaminate underground water systems. Care must be taken to prevent organochlorine pesticide residues from getting into the environment.

Extinguishing Media: Use carbon dioxide, dry chemical, or foam. Water is ineffective in putting out acetone fires, and the water will spread the flames. Use water, however, to cool fire-exposed containers to prevent pressure rupture. Prevent chlorinated pesticides residues from getting into the environment.

Special Fire Procedures: Fire fighters should wear a self-contained breathing apparatus (SCBA) with a full face piece in the pressure demand or positive mode and other protective clothing.

SECTION V. REACTIVITY DATA

Stability: **__X__ Stable** **_____ Unstable**

Conditions to Avoid: Avoid contact with heat, sparks, flames, or other sources of ignition. Avoid inhalation of vapors or combustion by-products. Avoid contact with the skin. **DO NOT** allow the material to contaminate water sources.

Incompatibility (Materials to Avoid): Acetone is incompatible with acids, amines, halogens, halo carbons, oxidizing materials, metal salts, peroxides, combustible materials, and bases.

See Section IV**:** *Unusual Fire and Explosion Hazards*

Hazardous Decomposition or By-products: Thermal decomposition of acetone may produce oxides of carbon. Thermal-oxidative degradation of organochlorine pesticides can produce toxic gases such as carbon monoxide, chlorine, chlorinated aromatic fragments, phenolics, aldehydes, and hydrogen chloride.

Hazardous Polymerization: _____ **Will Occur** __X__ **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: __X__ **Inhalation** __X__ **Skin** __X__ **Ingestion**

Acetone: Inhalation of low levels of acetone may cause slight transient irritation of the upper respiratory tract. Levels exceeding 12 000 mg/kg has caused throat irritation, and central nervous depression with weakness of the legs, headache, dizziness, drowsiness, and nausea. Other symptoms from exposure may include dryness of the mouth and throat, incoordination of motion and speech, restlessness, abdominal pain, vomiting, dyspnea, irregular respiration, and weak pulse. Liver damage may be indicated by high urobilin levels and jaundice. Kidney damage may be indicated by albumin along with red and white cells in the urine. Blood glucose may also be affected. Reproductive effects have been reported in experimental animals.

Skin contact with acetone may cause irritation. Small amounts may be absorbed through intact skin. Repeated or prolonged exposure may cause dermatitis with drying, cracking, and erythema due to the defatting action accompanied by persistent paresthesia of the fingers.

Eye contact with acetone may cause irritation. Contact with high concentrations may cause immediate stinging. Prolonged or repeated exposure to the vapors may cause conjunctivitis.

Ingestion of acetone may cause a fruity odor of the breath with mucous membrane and gastroenteric irritation. In acute cases, a latent period may be followed by restlessness, diarrhea, nausea, and vomiting. Hepatorenal lesions have been reported. The blood glucose level may be affected. Amounts of 200 mL have caused stupor, flushed cheeks, shallow respiration, and a coma which lasted for 12 hours. Renal damage persisted for five months.

Chlorinated Pesticides: Exposure to chlorinated pesticides can cause cough, confusion, ataxia, headache, weakness, and dizziness. Ingestion may cause abdominal pain, nausea, vomiting, and diarrhea. Pesticides are liver toxins. Many pesticides are considered to have carcinogenic properties.

Medical Conditions Generally Aggravated by Exposure: Acetone: respiratory disorders, skin disorders, and allergies

Listed as a Carcinogen/Potential Carcinogen (Isooctane):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

Listed as a Carcinogen/Potential Carcinogen (Chlorinated Pesticides):*

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	*	*
In the International Agency for Research on Cancer (IARC) Monographs	*	*
By the Occupational Safety and Health Administration (OSHA)	*	*

***NOTE:** Many chlorinated pesticides are classified as carcinogens or potential carcinogens.

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If vapors are inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: **Acetone:** central nervous system (CNS)
Organochlorine Pesticides: liver

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills and/or leaks. Evacuate nonessential personnel. Stop the leak if one can do so without risk. Absorb small spills with sand or other absorbent material and place into containers for disposal. **DO NOT** flush into a sewer. Keep out of watersheds and waterways.

Waste Disposal: Follow all federal, state, and local laws governing disposal.

Handling and Storage: Persons handling this material must wear protective eyewear, clothing, and gloves to prevent contact with this material.

> **NOTE:** Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

Sealed ampoules, as received, should be stored in the dark at a temperature lower than 30 °C.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Acetone*, 18 September 2001.
The Sigma Aldrich Library of Chemical Safety Data, Ed. II, 1988.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data on the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.